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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	
Srinivasa Sesha Soma Sekhar Muppidi et al.	:	Examiner: David J. Lee
Serial No.: 10/071,951	:	Group Art Unit: 2633
Filed: February 6, 2002	:	
For: SYSTEM AND METHOD FOR CONFIGURATION DISCOVERY IN AN OPTICAL NETWORK	:	

APPEAL BRIEF

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I. REAL PARTY IN INTEREST

The real party in interest is Ciena Corporation, the assignee of record of the subject patent application.

II. RELATED APPEALS AND INTERFERENCES

Appellant is unaware of any prior or pending appeals, judicial proceedings or interferences which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1, 2, 4-16 and 20-54 are currently pending and have been finally rejected. Appellant hereby appeals the rejections of Claims 1, 2, 4-16 and 20-54.

IV. STATUS OF AMENDMENTS

An amendment was filed in the subject patent application subsequent to issuance of the Final Rejection on March 24, 2006. Notice that the amendment was entered was noted in the Advisory Action mailed June 29, 2006.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Appellants' invention, as recited in Claim 1, is directed to a method to determine configuration information (See specification p. 2, ¶[0006] and Fig. 1A) associated with an optical network having a plurality of optical nodes coupled by optical fiber spans. (See specification p. 4, ¶[0019]. The method includes discovering at least one neighboring optical node, each neighboring node being coupled by a single optical span having at least one optical fiber. (See specification, p. 4, ¶[0019]) Each node publishes at least one neighboring node to the network (See specification p. 7, ¶[0027]). Each node of said plurality of optical nodes determining a network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes. (See specification, p. 7, ¶[0028].

Appellant's invention, as recited in Claim 20 is directed to a method to determine a configuration error in an optical network having a plurality of optical nodes coupled by optical fiber spans (See specification, p. 8, ¶[0029], discovering at least one pair of neighboring optical nodes, each pair of neighboring optical nodes being coupled by a single optical span having at least one optical fiber;(See specification, p. 4, ¶[0019]) and determining a network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes (See specification p. 2, ¶[0006]) Generating an alarm signal indicative of a network configuration error responsive to detecting an error between the network configuration and a planned configuration (See specification p. 9, ¶[0030]) Then, each node receiving node identification messages from adjacent nodes that includes a unique source node identifier; (See specification p. 6, ¶[0024]) and each node publishing its neighboring nodes to the network, (See specification p. 7, ¶[0027]) each node publishing at least one node configuration attribute to the network each node forming an information model of the optical network; (See specification pp.

7-8, ¶[0028]) and each node determining a network configuration having an arrangement of neighboring nodes consistent with the information model of the node (See specification pp. 7-8, ¶[0028]).

Appellant's invention as set forth in claim 29 is directed to a method to determine configuration information associated with an optical network having a plurality of optical nodes coupled by optical fiber spans (See specification p. 4, ¶[0019]) comprising exchanging identification messages between neighboring nodes. (See specification p. 7, ¶[0026]) Each identification message including a source node identifier and node configuration data. (See specification p. 7, ¶[0026]) The method further includes for each node, publishing the identity of the node, the identity of its neighbors and the node configuration data associated with the node (See specification pp. 7-8, ¶[0027-28] pp. 14-15, ¶[0042] and Fig. 4B) and determining a network configuration consistent with the published node information. (See specification pp. 7-8, ¶[0028])

Appellant's invention as set forth in claim 36 is directed to an optical node for a optical network an optical transport complex for adding, dropping, and passing through optical channels; an administrative complex for administering the optical transport complex and having a memory adapted to receive provisioning data for the optical transport complex; (See specification p. 11, ¶[0035] and Fig. 3) and an inter-node communication module coupled to the administrative complex for communicating with neighboring nodes on an inter-node data channel and publishing data to the optical network; (See specification p. 11, ¶[0035] and Fig. 3) and a configuration discovery module exchanging node identification and configuration data with other nodes to determine the network configuration. (See specification p. 11-12, ¶[0036] and Fig. 3)

Appellant's invention as set forth in claim 40 is directed to an optical network comprising a plurality of optical nodes, each node having at least one neighbor node which is coupled to it by an optical span; (See specification p. 4, ¶[0019]) each node having an inter-node communication module to communicate with the other nodes of the network; (See specification p. 5, ¶[0022]) each node configured to identify itself to its neighbors and to publish the identity of its neighbors to the optical network; and at least one of the nodes configured to form a model of the network configuration from published neighbor information. (See specification pp. 7-8, ¶[0026-28] and Fig. 1B)

Appellant's invention as set forth in claim 51 is directed to an optical network comprising a plurality of optical nodes coupled by optical spans, each node including an internode communications capability to communicate messages with neighboring nodes; (See specification p. 5, ¶[0022]) neighbor discovery means for transmitting identification messages in opposite directions to one of said plurality of nodes to identify at least two neighboring nodes to said one of said plurality of nodes. (See specification p. 7, ¶[0026]) The network includes configuration analysis means for determining a configuration of the optical network having a topology map corresponding to a relationship between neighboring nodes; (See specification p. 7-8, ¶[0027-28] and Fig. 1B) and alarm means for generating an alarm signal indicative of a configuration error. (See specification p. 9, ¶[0030])

Appellant's invention as set forth in claim 54 is directed to a method to determine configuration information associated with an optical network having a plurality of optical nodes, said plurality of optical nodes including a first optical node, an east neighboring optical node connected to said first optical node by a first optical fiber span and a west neighboring optical node connected to said first optical node by a second optical fiber span, (See

specification p.13, ¶[0039] and Fig. 4A) the method comprising discovering said east and west neighboring optical nodes for said first optical node by said east neighboring optical node sending information to said first optical node in a first direction identifying said east neighboring node to said first optical node and said west neighboring optical node sending information to said first optical node in a direction opposite to said first direction identifying said west neighboring optical node to said first optical node; (See specification p. 13, ¶[0039] and Fig. 4A) and, determining a network configuration having a topological map of network links corresponding to nodal relationship information obtained in said discovering step. (See specification p.13-14, ¶[0040] and Fig. 4A)

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection are to be reviewed in the subject appeal:

(1) Whether Claims 1-2, 4-13, 17-25, 29, 30, 34,36-43 and 47-50 are anticipated under 35 U.S.C. 102 (e) by U.S. Patent No. 6,718,141 (deVette.); and,

(2) Whether Claims 14 -16, 26 - 28, 31 - 33 and 44 - 46 are obvious under 35 U.S.C. 103 in view of deVette; and,

(3) Whether Claims 51 – 54 are obvious under 35 U.S.C. 103 in view of deVette and U.S. Patent No. 6,456,599 (Elliot).

VII. ARGUMENT

Appellant respectfully submits that none of Claims 1, 2, 4-13, 20-25, 29, 30, 34, 36-43 and 47-50 are anticipated by deVette because deVette fails to teach or suggest Appellants' invention. As such, the rejection of Claims 1, 2, 4-13, 17-25, 29, 30, 34, 36-43 and 47-50 cannot be sustained.

A. THE REJECTION OF CLAIMS 1, 2, 4-13, 20-25, 29, 30, 34, 36-43 and 47-50 UNDER 35 USC 102 IS ERRONEOUS

The legal standards for anticipation is forth below followed by a detailed analysis of the Examiner's rejections.

"Anticipation...requires that the identical invention that is claimed was previously known to others and thus is not new...When more than one reference is required to establish unpatentability of the claimed invention anticipation under § 102 can not be found, and validity is determined in terms of § 103." *Continental Can v. Monsanto*, 948 F.2d 1264, 1267 (Fed. Cir. 1991)(emphasis added). The single reference must have an enabling disclosure. See *Advanced Display Systems Inc. v. Kent State University*, 54 USPQ 2d 1673, 1679 (Fed. Cir. 2000)("Accordingly, invalidity by anticipation requires that the four corners of a single, prior art document describe every element of the claimed invention, expressly or inherently, such that a person of ordinary skill in the art could practice the invention without undue experimentation.")(emphasis added); See also, *PPG Industries, Inc. v. Guardian Industries Corp.*, 37 USPQ 2d 1618, 1624 (Fed. Cir. 1996)("To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter.")(emphasis added) "To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. *Such evidence must make clear that the missing descriptive*

matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *Continental Can,* 948 F.2d at 1268. (emphasis added) "*Inherency, however, may not be established by probabilities or possibilities.* The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Oelrich,* 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981)(emphasis added). See also, *Continental Can,* 948 F.2d at 1269. "[T]he initial burden of establishing a *prima facie* basis to deny patenability to a claimed invention rests upon the examiner...In relying upon inherency, *the examiner must* provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art." *Ex parte Levy,* 17 USPQ 2d 1461, 1464 (BPAI 1990)(emphasis in original)

When evaluated under these legal standards for anticipation, it is readily evident that no claim of the subject patent application is anticipated by deVette as deVette does not disclose expressly or inherently every limitation of any pending claim of the subject patent application.

Appellant's invention, as recited in Claim 1, is directed to a method to determine configuration information associated with *an optical network having a plurality of optical nodes* coupled by optical fiber spans. The method comprises the steps of: (i) discovering at least one neighboring optical node, each neighboring optical node being coupled by a single optical span having at least one optical fiber; (ii) each node publishing at least one neighboring node to the network; and (iii) ***each node*** *of the plurality of optical nodes determining a network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes.*

deVette does not teach or suggest the step of **each node** of a plurality of optical nodes determining a network configuration having a topological map of network links corresponding to

the discovered neighboring nodes. On page two of the Official Action dated March 24, 2006, the Examiner alleges that deVette teaches that "each node of said plurality of optical nodes determining a network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes" (col. 2, lines 44-49; col. 22, lines 42-54 and Table 1 in col. 14). However, the cited passages in deVette (i.e., col. 2, lines 44-49; col. 22, lines 42-54 and Table 1 in col. 14) do not support the Examiner's assertion. These portions of the specification of deVette teach away from the claimed invention. For example, at col. 2 lines 43-54, deVette states;

> "Each node connectivity report 610 generated by a node 230 reflects only what topology and connectivity data has been reported to it by upstream nodes 293, 294. While, as has been shown, certain error conditions may be detected using this information, the possibility that the data reported by one or more upstream nodes 293, 294 has been corrupted by a fault in a segment 125-145 or a node 101-122, while expected to be rare, cannot be discounted. Such an event would not necessarily be detected, but would result in corruption of downstream node connectivity messages 610. *This would cascade to subsequent nodes and the connectivity messages would become completely unbelievable.*" (emphasis added)

Such a defect as described by deVette would certainly dissuade one from using node to node information to determine the network configuration. In fact, deVette expressly states that the mapping processor is located in CNM 123. (See deVette, col. 13, lines 55 to 60) Contrary to the examiner's assertion, CNM 123 not part of a node but is the Central Network Monitor. The deVette specification (col. 11, lines 21-22) does not indicate that the CNM is part of the node,

only that a connection exists. This connection would be for example, an optical fiber (communication link 124). deVette fails to teach expressly or inherently a method including the step of each of a plurality of optical nodes determining a network configuration having a topological map of network links corresponding to the discovered neighboring nodes. Accordingly, deVette cannot possibly anticipate Claim 1 and, therefore, the rejection should be withdrawn.

Claim 2 is also not anticipated by deVette as deVette never discloses "generating an alarm signal indicative of a network configuration error responsive to detecting an error between the network configuration and a planned configuration". The final rejection cites to column 28, lines 25-27 of deVette as well as column 22, lines 55-65 and column 20, lines 54-67. None of these portions of deVette describes "detecting an error between a network configuration and a planned configuration" as required by the claim. The portions of deVette cited in the final rejection do not meet the requirements of claim 2.

Claim 4 is dependant on claim 2 and further requires "correlating information to isolate the location of a configuration error". The portion of the specification of deVette cited in the final rejection (Column 3, lines 33-41) does not describe isolating the location of a configuration error and therefore claim 4 is not anticipated by deVette.

Claims 5 and 6 both depend from Claim 1 and, therefore, are allowable for at least the reasons that Claim 1 is patentable.

Claim 7 is dependant from claim 6 which is dependant from claim 1 and requires "each node forming an information model of the optical network". deVette does not disclose each node having an information model of the optical network. The passage of deVette at column 2,

lines 55-65 discusses a network node but does not disclose 'each node forming an information model of the entire network'.

Claim 8 is dependant on claim 7 and is also not anticipated by deVette as deVette never discloses "each node generates an alarm signal indicative of a network configuration error responsive to detecting an error in the network configuration". The final rejection cites to column 28, lines 25-27 of deVette which is a portion of claim 23 which discusses comparing identification data with configuration information wherein the identification data "identifying the source of in-band signals..." None of these portions of deVette describes "each node generates an alarm signal indicative of a network configuration error responsive to detecting an error in the network configuration" as required by the claim. The portions of deVette cited in the final rejection do not meet the requirements of claim 8 and the rejection should be withdrawn.

Claim 11 is dependant on claim 10 which depends from claim 1 and is also not anticipated by deVette. The passage of deVette cited in the final rejection namely, column 28, lines 25-27 do not mention issuing an error correction command. There is no basis to infer that the alarm message discussed by deVette contains any command. The portions of deVette cited in the final rejection do not meet the requirements of claim 11 and the rejection should be withdrawn.

Claim 13 is dependant on claim 2 which depends from claim 1 and is also not anticipated by deVette. The passage of deVette cited in the final rejection namely, column 2, lines 1-5 and lines 35-38 do not mention issuing an alarm signal responsive to determining incorrectly connected optical fibers. The portions of deVette cited in the final rejection do not meet the requirements of claim 13 and the rejection should be withdrawn.

Applicants' invention, as recited in Claim 20, is directed to a method to determine a

configuration error in an optical network having a plurality of optical nodes coupled by optical fiber spans. The method comprises the steps of: (i) discovering at least one pair of neighboring optical nodes, each pair of neighboring optical nodes being coupled by a single optical span having at least one optical fiber; (ii) determining a network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes; and (iii) generating an alarm signal indicative of a network configuration error responsive to detecting an error between the network configuration and a planned configuration.

deVette fails to teach or suggest, inter alia, the step of generating an alarm signal indicative of a network configuration error responsive to detecting *an error between the network configuration and a planned configuration.* The Examiner cites to col. 28, lines 25 to 27 of deVette in connection with this step. The cited passage is a portion of Claim 23 that reads as follows:

> [T]he at least one node transmitting an alarm message to denote an inconsistency between the *identification data* and the *configuration information.* (emphasis added)

The identification data is merely information obtained from the in-band signal about the source of the payload signal and the WDM carrier wavelength that is modulated by the payload signal. (See deVette, col. 23, lines 57 to 61) As such, the identification data does not satisfy either the *network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes* or the *planned configuration.* The office action further cites col. 20, lines 54-67 and col. 22, lines 55-65 to support the rejection. Neither of these portions of the specification of deVette anticipate or render obvious the step of "generating an alarm signal indicative of a network configuration error responsive to detecting *an error between the network configuration and a planned configuration"* and further do not satisfy either the

network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes or the *planned configuration.* Claim 17 has been incorporated into claim 20 along with intervening claims 18 and 19. Claim 20 further requires that "each node forming an information model of the optical network; and each node determining a network configuration having an arrangement of neighboring nodes consistent with the information model of the node." The office action identifies col. 2 lines 55-56 of deVette to support the rejection of claim 20. The configuration data referred to in lines 55-56 does not provide a teaching that the configuration data is "an information model of the optical network" or that "each node determining a network configuration having an arrangement of neighboring nodes consistent with the information model of the node". Accordingly, Claim 20 is not anticipated by DeVette.

Claim 21 is dependant on claim 20 and is also not anticipated by deVette as deVette never discloses "each node generates an alarm signal indicative of a network configuration error responsive to detecting an error in the network configuration". The final rejection cites to column 28, lines 25-27 of deVette which is a portion of claim 23 which discusses comparing identification data with configuration information wherein the identification data "identifying the source of in-band signals..." None of these portions of deVette describes "each node generates an alarm signal indicative of a network configuration error responsive to detecting an error in the network configuration" as required by the claim. The portions of deVette cited in the final rejection do not meet the requirements of claim 21 and the rejection should be withdrawn.

Claim 22 through 24 depend from Claim 20 and, therefore, are allowable for at least the reasons that Claim 20 is patentable.

Claim 25 is dependant on claim 24 which depends ultimately from claim 20 and is also not anticipated by deVette. The passage of deVette cited in the final rejection namely, column 2, lines 1-5 and lines 35-38 do not mention issuing an alarm signal responsive to determining incorrectly connected optical fibers. The portions of deVette cited in the final rejection do not meet the requirements of claim 25 and the rejection should be withdrawn.

Applicants' invention, as recited in Claim 29, is directed to a method to determine configuration information associated with an optical network having a plurality of optical nodes coupled by optical fiber spans. The method comprises the steps of: (i) exchanging identification messages between neighboring nodes, each identification message including a source node identifier and node configuration data; (ii) *for each node, publishing* the identity of the node, *the identity of its neighbors*, and the node configuration data associated with the node; and (iii) determining a network configuration consistent with the published node information.

deVette fails to teach or suggest Applicants' invention including the step of for each node publishing the identity of its neighbors (i.e., more than one neighbor node). The Examiner's reliance on deVette at col. 14, lines 16-28 is misplaced. Specifically, col. 14, lines 16-28 do not disclose the step of for each node publishing the identity of its neighbors (i.e., more than one neighbor node). In fact, this passage never refers to neighbor nodes at all. For this reason alone, deVette cannot anticipate Claim 29.

Claim 30 depends from claim 29 and is also not anticipated by deVette as deVette never discloses "each node generates an alarm signal indicative of a network configuration error responsive to detecting an error in the network configuration". The final rejection cites to column 28, lines 25-27 of deVette which is a portion of claim 23 which discusses comparing identification data with configuration information wherein the identification data "identifying the

source of in-band signals..." None of these portions of deVette describe "each node generates an alarm signal indicative of a network configuration error responsive to detecting an error in the network configuration" as required by the claim. The portions of deVette cited in the final rejection do not meet the requirements of claim 30 and the rejection should be withdrawn.

Claim 34 is dependant on claim 30 which depends from claim 29 and is also not anticipated by deVette. The passage of deVette cited in the final rejection namely, column 2, lines 1-5 and lines 35-38 do not mention issuing an alarm signal responsive to determining incorrectly connected optical fibers. The portions of deVette cited in the final rejection do not meet the requirements of claim 25 and the rejection should be withdrawn.

Applicants' invention, as recited in Claim 36, is directed to an optical node for a optical network. The optical node comprises an optical transport complex for adding, dropping, and passing through optical channels; an administrative complex for administering the optical transport complex and having a memory adapted to receive provisioning data for the optical transport complex; an inter-node communication module coupled to the administrative complex for communicating with neighboring nodes on an inter-node data channel and publishing data to the optical network; and a configuration discovery module exchanging node identification and configuration data with other nodes to determine the network configuration.

Claim 36 describes the structure of a single optical node of an optical network. Accordingly, to anticipate Claim 36 deVette must disclose expressly or inherently a single node that has the identical features set forth in Claim 36. As is readily evident from the Examiner's citations to deVette, the Examiner is merely identifying various aspects of the optical network rather than structure identical to that set forth in Claim 36 that is contained in a single node disclosed by deVette. The Examiner cannot identify a single node having all of the features of

Claim 36 in deVette as deVette fails to disclose expressly or inherently any such node. As previously discussed, CNM 123 not part of a node, but is the Central Network Monitor. The portion of the specification (col. 11, lines 21-22) does not indicate that the CNM is part of the node, only that a connection exists. This connection would be for example, an optical fiber (communication link 124). For these reasons, the rejection of Claim 36 based on deVette must be withdrawn.

Claim 37 depends from Claim 36 and requires *the optical node* to include a neighbor discovery module, a publication module to exchange node identification messages with neighboring nodes and publish neighbor information to the optical network and a configuration analysis module forming an information module of the optical network and an alarm generator comparing the information model with the provisioning data. The final rejection simply picks and chooses among various network components to attempt to obtain all of the required components of the claim. But even if the components were equivalent in function to the claimed components, they are not contained in a single optical node as required by the claim. Furthermore, claim 37 is not anticipated by deVette as deVette never discloses "an alarm generator comparing the information model with the provisioning data and generating a configuration alarm responsive to detecting an error in the network configuration. The final rejection cites to column 28, lines 25-27 of deVette as well as column 22, lines 55-65 and column 20, lines 54-67. None of these portions of deVette describe the alarm generator as required by the claim. The portions of deVette cited in the final rejection do not meet the requirements of claim 37. For these reasons, the rejection of Claim 37 based on deVette must be withdrawn.

Claims 38 and 39 depend from Claims 37 and 36, respectively and, therefore, are allowable for at least the reasons that Claims 37 and 36 are patentable.

Applicants' invention, as recited in Claim 40 is directed to an optical network including a plurality of optical nodes, each node having at least one neighbor node which is coupled to it by an optical span. Each node has an inter-node communication module to communicate with the other nodes of the network. *Each node is configured to identify itself to its neighbors and to publish the identity of its neighbors to the optical network.* At least one of the nodes is configured to form a model of the network configuration from published neighbor information.

As explained in connection with Claim 29, DeVette does not disclose an optical network having a plurality of optical nodes with each node configured to identify itself to its neighbors (i.e., more than one neighbor) and to publish the identity of its neighbors (i.e., more than one neighbor) to the optical network. The passage in DeVette at col. 19, lines 30 to 40 relied upon by the Examiner merely refers to figure 6B. As previously explained, this figure at most identifies a single neighbor represented by reference numeral 613 to a node represented by reference numeral 612. For this reason alone, DeVette cannot possibly anticipate Claim 40. Further, DeVette fails to disclose expressly or inherently at least one of the nodes being configured to form a model of the network configuration from the published neighbor information. The Examiner's reliance on the mapping processor referred to at col. 4, lines 45 to 55 is misplaced as this processor is located in the central network monitor not the nodes forming the optical network. Accordingly, Claim 40 patentably defines over DeVette and the rejection should be withdrawn.

Claim 41 is not anticipated by deVette as deVette never discloses "an alarm signal responsive to the network configuration being different from a provisioned network

configuration". The final rejection cites to column 28, lines 25-27 of deVette. This portion of deVette does not describe the alarm signal as required by the claim. For these reasons, the rejection of Claim 41 based on deVette must be withdrawn.

Claim 42 depends from Claim 40 and, therefore, is allowable for at least the reasons that Claim 40 is patentable.

Claim 43 is not anticipated by deVette as deVette never discloses "an alarm signal responsive to the network configuration being different from a provisioned network configuration". The final rejection cites to column 28, lines 25-27 of deVette. This portion of deVette does not describe the alarm signal as required by the claim. For these reasons, the rejection of Claim 43 based on deVette must be withdrawn.

Claim 47 is not anticipated by deVette as deVette fails to disclose that *each* node includes "an optical transport complex..." and "an administrative complex...". The portions of the specification of deVette cited in the final rejection are merely recitations of parts of an optical network. The patent of deVette neither explicitly not inherently discloses the required claim elements of claim 47 in each node of the network set forth in claim 40. For these reasons, the rejection of Claim 47 based on deVette must be withdrawn.

Claims 48, 49 and 50 require issuance of an error correction command responsive to determining a network configuration error. The disclosure of deVette at column 12, lines 43-48 does not discuss any aspect of issuance of an error correction command responsive to determining a network configuration error, either expressly or inherently and therefore the rejection of Claims 48-50 based on deVette must be withdrawn.

B. THE REJECTION OF CLAIMS 14-16, 26-28, 31-33 AND 44-46 AS OBVIOUS UNDER 35 U.S.C. 103 IN VIEW OF DEVETTE IS ERRONEOUS

Obviousness, ultimately, is a determination of law based on underlying determinations of fact. *Monarch Knitting Machinery Corp. v. Sulzer Morat Gmbh,* 139 F. 3d 877, 881 (Fed. Cir. 1998) "These underlying factual determinations include (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and, (4) the extent of any proffered objective indicia of non-obviousness." Id. "During examination, the examiner bears the initial burden of establishing a prima facie case of obviousness...The prima facie case is a procedural tool, and requires the examiner to initially produce evidence to support a ruling of obviousness. *In re Kumar*, 418 F.3d 1361, 1366, 76 USPQ 1048 (Fed. Cir. 2005)(emphasis added) The invention must be considered as a whole without the benefit of hindsight, and the claims must be considered in their entirety. *Rockwell International Corp. v. United States*, 1473 F.3d 1358, 1364 (Fed. Cir. 1998) "One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." *In re Fine*, 837 F.2d 1071, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988). It is impermissible to use the claimed invention as a blueprint from which to reconstruct the prior art to satisfy the claimed invention. *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 227 USPQ 543, 548 (Fed. Cir. 1985) ("From its discussion of the prior art it appears to us that the court, guided by the defendants, treated each reference as teaching *one* or more of the specific components for use in the Feil system, although the Feil system did not then exist. Thus the court reconstructed the Feil system, using the blueprint of the Feil claims. As is well established, this is legal error.") The prior art must be considered as a whole and suggest the desirability and thus the obviousness of making the combination. *Lindermann*

Maschinefabrik Gmbh v. American Hoist and Derrick Co., 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984) *There must be a suggestion or motivation in the prior art to modify a reference* to satisfy the claimed invention. *In re Gordon*, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "*The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.*" *Id.* (emphasis added)

Appellant respectfully submits that deVette, when evaluated under the above criteria, does not render obvious a single claim of the subject patent application as the necessary teaching, suggestion or motivation to modify deVette to achieve the claimed invention is lacking. Rather, the Examiner's rejections can only be made through the use of impermissible hindsight reconstruction.

Appellant's invention, as recited in Claim 14, requires that an incompatible node type alarm signal is issued responsive to determining that the at least one node is of an incompatible node type. In the final office action, it is admitted that deVette does not disclose this feature. See final rejection at page 10, lines 3-5. Claim 14 depends from Claim 2 and it should be noted that Claim 2 is not anticipated by deVette as deVette never discloses "generating an alarm signal indicative of a network configuration error responsive to detecting an error between the network configuration and a planned configuration". The final rejection cites to column 28, lines 25-27 of deVette as well as column 22, lines 55-65 and column 20, lines 54-67. None of these portions of deVette describe "detecting an error between a network configuration and a planned configuration" as required by the claim. The portions of deVette cited in the final rejection do not meet the requirements of claim 2. Therefore, Claim 14 is not obvious in view of deVette since

deVette does not even disclose the requirements of Claim 2 regarding an alarm signal, much less a signal responsive to determining that the at least one node is of an incompatable node type.

The rejections of claims 15 and 16 have been apparently lumped into the rejection of claim 14 since the specific basis for the rejection of those claims has not been presented. But similarly, the rejection of Claims 15 and 16, which are each dependant on Claim 2, require issuance of an specific alarm signal. Neither alarm signal is disclosed by deVette and as with Claim 14, Claims 15 and 16 are not obvious in view of deVette since deVette does not even disclose the requirements of Claim 2 regarding an alarm signal, much less a signal responsive to determining that the at least one node has an incompatable node setting as required by Claim 15 or an out-of-bound node parameter alarm as required by Claim 16.

Applicant's invention as set forth in Claims 26, 27 and 28 each recite specific alarm signals corresponding to a specific configuration errors. Claims 26, 27 and 28 all depend from claim 23 which depends from Claim 20. deVette fails to teach or suggest, inter alia, the step of generating an alarm signal indicative of a network configuration error responsive to detecting *an error between the network configuration and a planned configuration.* The Examiner cites to col. 28, lines 25 to 27 of deVette in connection with this step of Applicant's Claim 20. The cited passage is a portion of Claim 23 of deVette that reads as follows:

> the at least one node transmitting an alarm message to denote an inconsistency between the *identification data* and the *configuration information.* (emphasis added)

The identification data is merely information obtained from the in-band signal about the source of the payload signal and the WDM carrier wavelength that is modulated by the payload signal. (See deVette, col. 23, lines 57 to 61) As such, the identification data does not satisfy either the *network configuration having a topological map of network links corresponding to the*

discovered neighboring optical nodes or the *planned configuration.* The office action further cites col. 20, lines 54-67 and col. 22, lines 55-65 to support the rejection. Neither of these portions of the specification of deVette anticipate or render obvious the step of "generating an alarm signal indicative of a network configuration error responsive to detecting *an error between the network configuration and a planned configuration"* and further do not satisfy either the *network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes* or the *planned configuration.*

In the final rejection, the Examiner takes official notice of the requirements of Claims 26-28 since there is no disclosure in deVette upon which to base such a rejection. None of the alarm signals are disclosed by deVette and Claims 26-28 are not obvious in view of deVette since deVette does not even disclose the requirements of Claim 20 regarding an alarm signal, much less an incompatable node type alarm signal as required by claim 26, or a signal responsive to determining that the at least one node has an incompatable node setting as required by Claim 27 or an out-of-bound node parameter alarm as required by Claim 28.

Applicant's invention as set forth in Claims 31, 32 and 33 each recite specific alarm signals corresponding to specific configuration errors. Claims 31, 32 and 33 all depend from claim 30, which depends from Claim 29. Claim 30 also not anticipated by deVette as deVette never discloses "each node generates an alarm signal indicative of a network configuration error responsive to detecting an error in the network configuration". The final rejection cites to column 28, lines 25-27 of deVette which is a portion of claim 23 which discusses comparing identification data with configuration information wherein the identification data "identifying the source of in-band signals..." None of these portions of deVette describe "each node generates an alarm signal indicative of a network configuration error responsive to detecting an error in the

network configuration" as required by the claim 30. Furthermore, there is no teaching in deVette for the alarm signals corresponding to specific configuration errors as required by claims 31, 32 and 33. Such a conclusion of obviousness is clearly based on hindsight.

Applicant's invention as set forth in Claims 44, 45 and 46 each recite specific alarm signals corresponding to specific configuration errors. Claims 44, 45 and 46 all depend from claim 43, which depends from Claim 42, which depends from claim 40. Claim 43 is also not anticipated by deVette as deVette never discloses "an alarm signal responsive to the network configuration being different from a provisioned network configuration". The final rejection cites to column 28, lines 25-27 of deVette. This portion of deVette does not describe the alarm signal as required by the claim. Furthermore, there is no teaching in deVette for the alarm signals corresponding to specific configuration errors as required by claims 44, 45 and 46. Such a conclusion of obviousness is clearly based on hindsight.

In view of the foregoing remarks, the rejections of claims 14-16, 26-28, 31-33 and 44-46 as obvious in view of deVette should be withdrawn.

C. THE REJECTION OF CLAIMS 51-54 AS OBVIOUS UNDER 35 U.S.C. 103 IN VIEW OF DEVETTE AND ELLIOT IS ERRONEOUS

Applicants' invention, as recited in Claim 51, is directed to an optical network, comprising a plurality of optical nodes coupled by optical spans, each node including an internode communications capability to communicate messages with neighboring nodes. The optical network also includes *neighbor discovery means for transmitting identification messages in opposite directions to one of the plurality of nodes to identify at least two neighboring nodes to the one of the plurality of nodes* and configuration analysis means for determining a configuration of the optical network having a topology map corresponding to a relationship

between neighboring nodes. The optical network further includes alarm means for generating an alarm signal indicative of a configuration error.

Figure 1B of the subject patent application illustrates one of many possible arrangements in which identification messages are transmitted in opposite directions to one of a plurality of nodes (e.g., node 1 in figure 1B) to identify at least two neighboring nodes (e.g., nodes 2 and 4). As is readily evident from Figure 1 of deVette and the passage at col. 22, lines 39 to 45, signals concerning network configuration travel in only one direction, i.e., downstream. On this point, deVette clearly states that "[e]ach node connectivity report 610 generated by a node 230 reflects only what topology and connectivity data has been reported to it by the upstream nodes 293, 294." (See deVette, col. 22, lines 42 to 45)

The patent of Elliot has been cited for the proposition that it teaches neighbor discovery means and transmits signals in opposite directions to discover neighboring nodes. (See final rejection action, page 11) There is no basis for the combination of deVette and Elliot. While the examiner notes that deVette recognizes that bidirectional communications may have applicability to long haul networks, deVette fails to teach any application of data collection relevant to a bidirectional system, but only to a unidirectional system and further as referenced above with respect to claim 1, portions of the specification of deVette teach away from the claimed invention. For example, at col. 2 , lines 43-54 states;

> "Each node connectivity report 610 generated by a node 230 reflects only what topology and connectivity data has been reported to it by upstream nodes 293, 294. While, as has been shown, certain error conditions may be detected using this information, the possibility that the data reported by one or more upstream nodes 293, 294 has been corrupted by a fault in a segment 125-145 or a

node 101-122, while expected to be rare , cannot be discounted. Such an event would not necessarily be detected, but would result in corruption of downstream node connectivity messages 610. *This would cascade to subsequent nodes and the connectivity messages would become completely unbelievable.*" (emphasis added)

Consequently, there is no basis to assert that it would be obvious to combine deVette with Elliot to achieve the invention of Claim 51.

Claims 52 and 53 depend from Claim 51 and, therefore, are allowable for at least the reasons that Claim 51 is patentable.

As to Claim 54, the patents of deVette and Elliot cannot be combined for the same reasons as set forth with respect to claim 51, and further, the combination of deVette and Elliot does not teach *inter alia* the step in claim 54 of "determining a network configuration having a topological map of network links corresponding to nodal relationship information obtained in said discovering step." Applicant respectfully requests that the rejections of the foregoing claims be withdrawn for the reasons stated.

VIII. CONCLUSION

When evaluated under the controlling legal standards, the Examiner's rejections of of Claims 1, 2, 4-16 and 20-54 cannot be sustained. Hence, Appellant respectfully requests that all grounds of rejection be reversed.

A check in the amount of $500.00 is attached hereto to satisfy the government fee for filing the subject appeal brief. It is believed that no additional fees are due. However, should that determination be incorrect, the Commissioner is hereby authorized to charge any deficiencies to Deposit Account No. 50-0562 and notify the undersigned in due course.

Respectfully submitted,

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IX. CLAIMS APPENDIX

1. A method to determine configuration information associated with an optical network having a plurality of optical nodes coupled by optical fiber spans, the method comprising:

discovering at least one neighboring optical node, each neighboring optical node being coupled by a single optical span having at least one optical fiber;

each node publishing at least one neighboring node to the network; and

each node of said plurality of optical nodes determining a network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes.

2. The method of claim 1, further comprising:

generating an alarm signal indicative of a network configuration error responsive to detecting an error between the network configuration and a planned configuration.

3. (Canceled)

4. The method of claim 2, further comprising:

correlating information from each node to isolate the location of a configuration error.

5. The method of claim 1, wherein discovering at least one neighboring optical node comprises:

each node receiving node identification messages from adjacent nodes that includes a unique source node identifier.

6. The method of claim 1, further comprising: each node publishing at least one node configuration attribute to the network.

7. The method of claim 6, further comprising:

each node forming an information model of the optical network; and

each node determining a network configuration having an arrangement of neighboring nodes consistent with the information model of the node.

8. The method of claim 7, wherein:

each node generates an alarm signal indicative of a network configuration error responsive to the node detecting an error in the network configuration.

9. The method of claim 8, further comprising:

correlating the alarm signals of the nodes to isolate a location of a configuration error.

10. The method of claim 1, further comprising:

forming an information model of the optical network which includes at least one node configuration attribute for each node; and

determining a network configuration having an arrangement of neighboring nodes consistent with the information model.

11. The method of claim 10, further comprising:

responsive to determining that the network configuration differs from a planned configuration, issuing an error correction command to alter at least one aspect of the optical network to form a compatible network configuration.

12. The method of claim 10, wherein the information model includes the identity of each span interface coupling neighboring nodes.

13. The method of claim 2, wherein the error is a fiber misconnection error and an alarm signal is issued responsive to determining incorrectly connected optical fibers.

14. The method of claim 2, wherein the error is that at least one node is of an incompatible node type, and an incompatible node type alarm signal is issued responsive to determining that at least one node is of an incompatible node type.

15. The method of claim 2, wherein the error is that at least one node has an incompatible node setting and an incompatible node setting alarm signal is issued responsive to determining that the at least one node has an incompatible node setting.

16. The method of claim 2, wherein the error is that at least one node has a parameter associated with the node that is incompatible with the network design and an out-of-bound node parameter alarm signal is issued responsive to determining that the at least one node has an out-of-bound node parameter that is incompatible with the planned configuration.

17 – 19. (canceled).

20. A method to determine a configuration error in an optical network having a plurality of optical nodes coupled by optical fiber spans, the method comprising:

discovering at least one pair of neighboring optical nodes, each pair of neighboring optical nodes being coupled by a single optical span having at least one optical fiber;

determining a network configuration having a topological map of network links corresponding to the discovered neighboring optical nodes; and

generating an alarm signal indicative of a network configuration error responsive to detecting an error between the network configuration and a planned configuration.

each node receiving node identification messages from adjacent nodes that

includes a unique source node identifier; and

each node publishing its neighboring nodes to the network.

each node publishing at least one node configuration attribute to the network

each node forming an information model of the optical network; and

each node determining a network configuration having an arrangement of neighboring nodes consistent with the information model of the node.

21. The method of claim 20, wherein:

each node generates an alarm signal indicative of a network configuration error responsive to the node detecting an error in the network configuration.

22. The method of claim 21, further comprising:

correlating the alarm signals of the nodes to isolate a location of a configuration error.

23. The method of claim ~~17~~ 20, further comprising:

forming an information model of the optical network that includes at least one node configuration attribute for each node; and

determining a network configuration having an arrangement of neighboring nodes consistent with the information model.

24. The method of claim 23, wherein the information model includes the identity of each span interface coupling neighboring nodes.

25. The method of claim 24, wherein the error is a fiber misconnection error and an alarm signal is issued responsive to determining incorrectly connected optical fibers.

26. The method of claim 23, wherein the error is that at least one node is of an incompatible node type, and an incompatible node type alarm signal is issued responsive to determining that at least one node is of an incompatible node type.

27. The method of claim 23, wherein the error is that at least one node has an incompatible node setting and an incompatible node setting alarm signal is issued responsive to determining that the at least one node has an incompatible node setting.

28. The method of claim 23, wherein the error is that at least one node has a parameter associated with the node that is incompatible with the network design and an out-of-bound node parameter alarm signal is issued responsive to determining that the at least one node has an out-of-bound node parameter that is incompatible with the planned configuration.

29. A method to determine configuration information associated with an optical network having a plurality of optical nodes coupled by optical fiber spans, the method comprising:

exchanging identification messages between neighboring nodes, each identification message including a source node identifier and node configuration data;

for each node, publishing the identity of the node, the identity of its neighbors, and the node configuration data associated with the node; and

determining a network configuration consistent with the published node information.

30. The method of claim 29, further comprising:

generating an alarm signal indicative of a configuration error responsive to

detecting an error in the network configuration.

31. The method of claim 30, wherein the node configuration data includes the node protection type and the alarm signal is an incompatible node protection type alarm signal generated responsive to determining that a node is of an incompatible node protection type.

32. The method of claim 30, wherein the node configuration data includes a node setting and the alarm signal is an incompatible node setting alarm signal generated responsive to determining that a node has an incompatible node setting.

33. The method of claim 30, wherein the node configuration data includes a node parameter associated with the network configuration and the alarm signal is an incompatible node parameter alarm signal generated responsive to determining that at least one node has an incompatible node parameter.

34. The method of claim 30, wherein the nodes publish information sufficient to determine the span interfaces by which they are coupled to neighboring nodes and the alarm signal is an incorrect fiber connection alarm signal generated responsive to determining that at least one node has incorrectly connected fibers.

35. The method of claim 29, further comprising:

responsive to determining that the network configuration differs from a planned configuration, issuing an error correction command to alter at least one aspect of the optical network to form a compatible network configuration.

36. An optical node for a optical network, comprising:

an optical transport complex for adding, dropping, and passing through optical channels;

an administrative complex for administering the optical transport complex and having a memory adapted to receive provisioning data for the optical transport complex;

an inter-node communication module coupled to the administrative complex for communicating with neighboring nodes on an inter-node data channel and publishing data to the optical network; and

a configuration discovery module exchanging node identification and configuration data with other nodes to determine the network configuration.

37. The optical node of claim 36, wherein the configuration discovery module further comprises:

a neighbor discovery and publication module to exchange node identification messages with neighboring nodes and publish neighbor information to the optical network;

a configuration analysis module forming an information model of the optical network consistent with the node relationships of the neighbor information; and

an alarm generator comparing the information model with the provisioning data and generating a configuration alarm responsive to detecting an error in the network configuration.

38. The optical node of claim 37, wherein the configuration discovery module includes node configuration data comprising a node identifier and at least one network

attribute associated with the node.

39. The optical node of claim 36, wherein the configuration discovery module issues an alarm signal responsive to detecting a configuration error.

40. An optical network, comprising:

a plurality of optical nodes, each node having at least one neighbor node which is coupled to it by an optical span;

each node having an inter-node communication module to communicate with the other nodes of the network;

each node configured to identify itself to its neighbors and to publish the identity of its neighbors to the optical network; and

at least one of the nodes configured to form a model of the network configuration from published neighbor information.

41. The network of claim 40, wherein at least one of the nodes is configured to issue an alarm signal responsive to the network configuration being different from a provisioned network configuration.

42. The network of claim 40, wherein each node publishes a node identifier and at least one node attribute to its neighbors and the model to the network includes the at least one node attribute.

43. The network of claim 42, where at least one of the nodes is configured to issue an alarm responsive to the network configuration being different from a provisioned network configuration.

44. The network of claim 43, wherein the alarm is an incompatible node protection type alarm responsive to detecting a node of an incorrect protection type.

45. The network of claim 43, wherein the alarm in an incompatible node setting alarm responsive to detecting a node having an incompatible node setting.

46. The network of claim 43, wherein the alarm is an incompatible node parameter alarm responsive to detecting a node having an incompatible node parameter.

47. The network of claim 40, wherein each node includes:

an optical transport complex for adding, dropping, and passing through optical channels; and

an administrative complex for administering the optical transport complex and having a memory adapted to receive provisioning data for the optical transport complex.

48. The network of claim 40, further comprising:

an element management system (EMS) coupled to receive the model of the network configuration and issuing an error correction command responsive to determining a network configuration error.

49. The network of claim 48, wherein the error correction command comprises provisioning at least one of the nodes.

50. The network of claim 48, wherein the error correction command is an instruction to alter a node component.

51. An optical network, comprising:

a plurality of optical nodes coupled by optical spans, each node including an internode communications capability to communicate messages with neighboring nodes;

neighbor discovery means for transmitting identification messages in opposite directions to one of said plurality of nodes to identify at least two neighboring nodes to said one of said plurality of nodes;

configuration analysis means for determining a configuration of the optical network having a topology map corresponding to a relationship between neighboring nodes; and

alarm means for generating an alarm signal indicative of a configuration error.

52. The optical network of claim 51, wherein the neighbor discovery means is configured to publish neighbor information to the network.

53. The optical network of claim 51, wherein each node further publishes at least one additional node attribute to at least one other node.

54. A method to determine configuration information associated with an optical network having a plurality of optical nodes, said plurality of optical nodes including a first optical node, an east neighboring optical node connected to said first optical node by a first optical fiber span and a west neighboring optical node connected to said first optical node by a second optical fiber span, the method comprising:

discovering said east and west neighboring optical nodes for said first optical node by said east neighboring optical node sending information to said first optical node in a first direction identifying said east neighboring node to said first optical node and said west neighboring optical node sending information to said first optical node in a direction opposite to said first direction identifying said west neighboring optical node to said first optical node; and,

determining a network configuration having a topological map of network links corresponding to nodal relationship information obtained in said discovering step.

X. EVIDENCE APPENDIX

None.

XI. RELATED PROCEEDINGS APPENDIX

None.